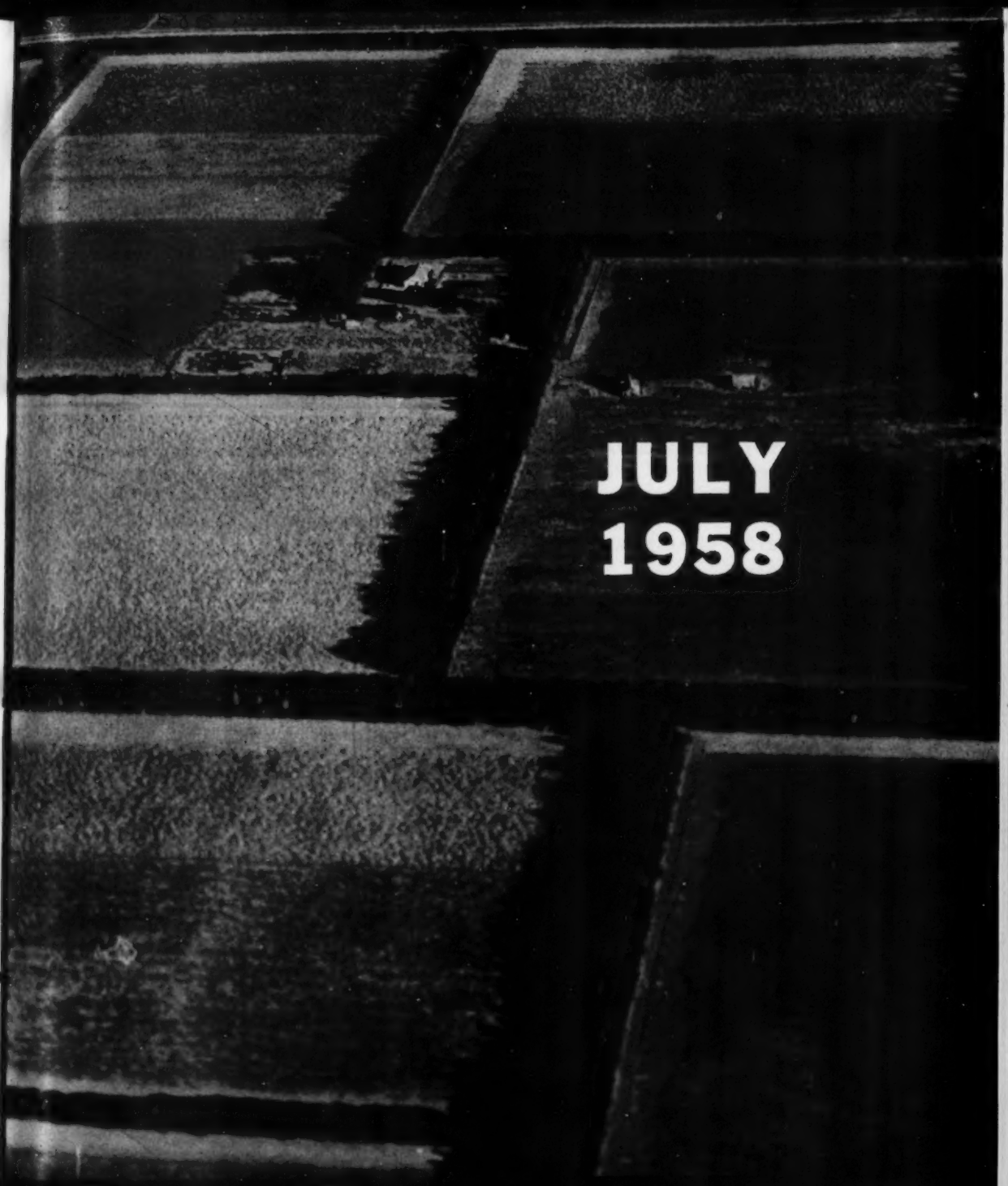

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EZRA TAFT BENSON
SECRETARY OF AGRICULTURE

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ADMINISTRATOR, SOIL CONSERVATION SERVICE

OFFICIAL ORGAN OF THE SOIL CONSERVATION SERVICE
U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

★ THIS MONTH ★

TOM DALE, Editor

SOIL CONSERVATION is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business. The printing of this publication has been approved by the Bureau of the Budget, July 18, 1955. SOIL CONSERVATION supplies information for workers of the Department of Agriculture and others engaged in soil conservation.

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D. A. WILLIAMS

Editors are invited to reprint material originating in this magazine.

FRONT COVER.—Farm windbreaks near Vernon, Tex., as seen from the air.

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Big Business On A Small Farm

Conservation Planning, Hard Work, and Good Management Convert a 90-Acre, Run-down Farm into a Profitable Enterprise.

By MILFORD SCHMIDT

EVER wonder how to make a living on a small farm? One way is to get a part-time job in town.

But that solution didn't suit Mr. James Schey and his wife, Wava, of Hancock County, Ohio. They wanted to make their farm operation a full-time job. And they did just that, though it took some hard work and planning—soil conservation planning, that is.

Back in 1947, when the Scheys rented a 90-acre farm all they had was Jim's $400 Navy discharge pay, two sows, one cow, a one-plow tractor with cultivator, a disk, and an old hen with 13 chicks.

Today, they not only own the farm—they have tripled their farm income in the last 8 years. The one-cow dairy herd has increased to 19 with an average of 11,000 pounds of milk annually. (Jim plans to expand the herd to 30.) The one hen with 13 chicks has grown to 600 hens, and Mrs. Schey was awarded a trophy as a master egg producer by a local seed corn company. This award was presented for producing 255 eggs per hen in 11 months.

In 1954, the Junior Chamber of Commerce selected Jim as the oustanding "Young Farmer" of Hancock County. He got another trophy from the Hancock County Farmers Club. And in 1956 and 1957, he was honored at the soil conservation district's annual meeting by the Goodyear Tire and Rubber Co. as the outstanding farmer in the county.

"Our first year of farming was the wet year of 1947," Jim recalls. "Two fields, totaling 20 acres, were so wet I didn't get to plant them at all. My oats yielded 5 bushels per acre. (Last year Jim got 70.) The pastures were mostly wiregrass. Gullies were 2 to 3 feet deep. The farm was run down and sick.

Note:—The author is work unit conservationist, Soil Conservation Service, Findlay, Ohio.

The Scheys bought the farm in 1949 and immediately started working over the buildings, beginning with the barn.

"We had hot water in the barn before we had it in the house," Wava said.

In 1950, they learned about the Hancock County Soil Conservation District program and signed an application with the district for technical assistance. After the SCS soil scientist made a land capability map of the farm, I, as a farm planner, went over the farm with James. It was agreed that the land was better suited to dairy and poultry than to hogs. Both a conservation crop rotation of corn-grain and 3 years of meadow were developed.

Grass waterways were put in, tile drainage was installed, and fields were rearranged to fit a "More Grass More of the Time" rotation. Soil samples were collected and, when tested, showed a need for lime. The whole farm has been limed, some fields a second time.

A crop fertility and meadow improvement

Wava and James Schey receive conservation award from Roy Grubb of the Goodyear Tire and Rubber Company.

plan was outlined. These improved meadows stopped the gullies and sheet erosion. Each acre now receives 1,000 pounds of fertilizer per rotation.

The effect on crop yields was spectacular. The first year the hay crop barely covered the hay mow to a depth of 6 feet. Last year, Jim filled the barn and left one cutting in the field. With a 4-ton hay yield per acre, it was the first time he did not have to buy hay.

The Scheys in their gladioli field.

His corn yields have gone from 29 bushels in 1947 to 101 bushels. Wheat yields have jumped from 30 to 40; and, oats from 5 to 70.

The farm had a 9-acre woodlot, which Jim now protects from fire and grazing. He has cut out from the woodlot blue beech, iron wood, poison-ivy, grapevines, and cull trees. Now, he has a good stand of oak, ash, and maple.

A planting of 3,000 multiflora rose hedges forms a living fence around the woods and makes a wildlife haven. Jim said recently that he had seen more quail, pheasants, and rabbits on the farm the past season than he had seen in any previous 10-year period.

The timber cut from cull trees produced 15,000 board feet of lumber, which he used to build a 40- by 50-foot henhouse plus remodeling a large brooder house. With the help of the neighbors, Jim has made many more improvements, including a garage, shop, milking parlor, and finally, the modernizing of the house. "Without the neighbors' help in cutting trees, sawing logs, and putting up the buildings, it would have been an endless job for the two of us," he says.

In spite of all the work in building a big business from the small farm, Jim finds time to be an associate supervisor of his soil conservation district. He is a member of the local Dairy Service Unit, Northern Ohio Breeders Association, Farmers Club, the Dairy Herd Improvement Association, and an active church member.

Mrs. Schey represents her township on the County Home Demonstration Council. She is a member of the garden club, teaches a Sunday School class, and is on the troop council for the Brownie Scouts.

The Scheys have participated in the International Youth Exchange, and in 1952 they had as a guest Jerardo Tobon from Colombia, South America. Also, in 1955, Waldenar Rodriques from Brazil was in their home.

By intensifying the output on this small farm the Scheys have assured themselves of a full-time job—they will not need to worry over the need for off-the-farm work. With only 76 crop acres on the 90-acre farm, they have succeeded in turning it into a full-scale operation by making the best use of each acre.

James Schey and favorite dog near a border planting of multiflora rose.

LAND FORMING IN ALLUVIAL AREAS

No: 35

This is the thirty-fifth of a series of articles to appear from time to time in explanation of the various phases of research being conducted by the Department of Agriculture on problems of soil and water conservation.

By IRWIN L. SAVESON

MANY different terms, such as land leveling, land grading, land smoothing and land shaping have been used to designate the land forming operation. They all refer to the same general practice.

The primary purpose of forming land is to provide a uniform land surface that will facilitate an even movement of surface water. Most alluvial farm lands have sloughs, depressions, or other irregular surfaces due to unequal deposition of water-transported materials during times of flood. Another cause of irregular surfaces is the failure to smooth a field after tillage to remove scars made by farm implements.

Often the breaking and cultivating of farmland is done in the same direction season after season, leaving holes where implements enter the ground and piling up earth where they leave the ground. Inadequate disposition of spoil banks from ditch excavations has left many barriers, which cause ponding. The presence of ponded water on farmland after heavy rains indicates an unsmooth surface, which results in lowered crop production by impairing the surface drainage of the land.

Research studies conducted in the early 1940's in Louisiana demonstrated the relationship between water-ponding pockets and yields. Smooth fields, having no pockets, produced 4.59 more tons of cane per acre than land having surface ponding of 2 inches or more on 53 percent of the land. The pockets not only impair surface drainage of land but make it almost impossible to secure an even application of supplementary irrigation water.

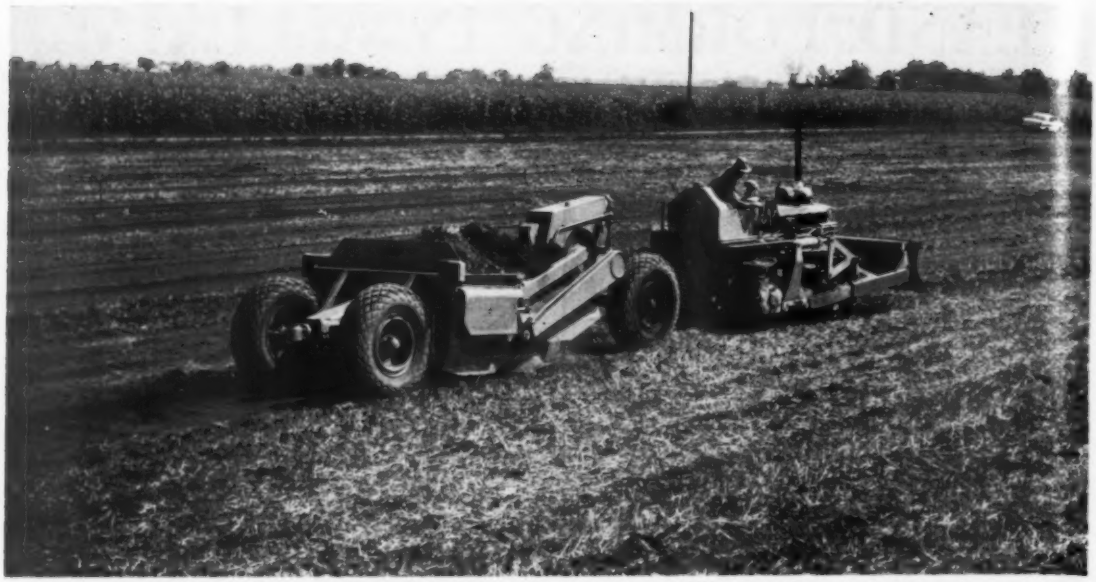
The practice of forming land was developed in the arid section of the United States to assist in the application of irrigation water. It is known in that section as "land leveling." This practice is moving to the humid section of the United States to assist both in the application of supplementary irrigation water and improvement of surface drainage. This twofold function of the practice applies to the alluvial areas of the South, and especially to the Mississippi River Valley sections of Arkansas, Louisiana, and Mississippi, which receive about 50 inches of rain per year. In many seasons the distribution of rainfall is not uniform. Planters have to provide drainage during periods of excess rainfall, and for maximum crop production, supplementary irrigation is needed during periods of inadequate rainfall.

Most of the land that is being formed in the alluvial section is primarily for row crops; however, some pasture land is being formed.

A recent reconnaissance survey made on five locations in Louisiana and two locations in Mississippi indicates that there are two general classes of alluvial land being formed: (1) Lands with ridges and sloughs, and (2) those having fairly uniform slopes. The ridge and slough lands have slopes of .1 ft. to 1 ft. per 100 ft., ranging in length up to three-fourths of a mile along the Mississippi and the bayous in Louisiana. In the Yazoo Basin in Mississippi the slopes range in length up to 3 miles. The uniform slopes in Louisiana and Mississippi range from .05 to .3 ft. per 100 ft., and range in length from 300 ft. to approximately 4 miles.

Agricultural workers have of necessity used the principles and techniques developed in the arid section of the United States in forming and

Note:—The author is project administrator, soil and water conservation research branch, Agricultural Research Service, Baton Rouge, La. This article is a condensation of a paper presented by the author at the Beltwide Cotton Mechanization Conference of the National Cotton Council of America, Shreveport, La., October 1957.



Pan-type, self loading scrapers are efficient for cutting off high spots and filling low places in land forming operations.

smoothing land, since there was little information available for the humid areas. But, due to climate, crops, topography, and soils they have found it necessary to modify western practices to meet conditions of the humid area.

The idle period for row cropland in Arkansas, Louisiana, and Mississippi is of short duration and is also the wet season of the year. This induces farmers to try to form the land when it is wet. In most instances this damages the land. Often the work is rushed and a poor job is the result. Experience has shown that it is more desirable to leave the land out of crop for a season, doing the forming during dry periods after adequate disposal of crop residues. Many farmers are forming their land when it is retired in the Soil Bank Program, others are forming their land after the oats are harvested in early summer.

Land forming operations in the humid section are complicated by the lush growth of vegetation. The first step in preparing land for forming is to dispose of crop residues. Much effort and machine time have been wasted in trying to form and smooth trashy land. The Delta Branch Experiment Station at Stoneville, Miss., reports an increased cost of $20 per acre for forming land under trashy conditions.

Crop residues are disposed of by plowing them under and allowing sufficient time for decomposition before starting the forming operations. In the meantime, volunteer vegetation is kept under control by disking.

Forming operations in disposing of trash and controlling vegetation leaves the earth in a fluffy condition. This must be considered in surveying and making the earth-moving calculations. The fluffy soil conditions lessen efficiency in many instances, as earth-moving equipment operates better on a firm soil than on a loosened soil. The area should be floated or dragged to remove implement scars and to firm the area as much as possible.

Most of the technical assistance in land forming is being given farmers by SCS technicians cooperating with soil conservation districts and the Extension Service; however, there are many private engineers doing this work in Mississippi. They are using a grid type survey with 100-ft. stations, reading their rods to a tolerance of .05 to .1 ft. The slope to which the area is to be graded in most instances is determined by using the "least squares" method. It has been found, however, that this method is not always applicable. This is especially true in non-rectangular areas, in which the slope is determined by aver-

age profiles and inspection methods.

Some engineers use a shrinkage factor when taking levels to overcome the problem of loosened earth due to disposal of crop residues. This shrinkage factor ranges from .01 to .12 ft. Other technicians have increased the cut and fill ratio to 150 percent to compensate for this loosened condition. Those who are using the shrinkage factor figure their cut and fill in most instances on a 60-40 basis.

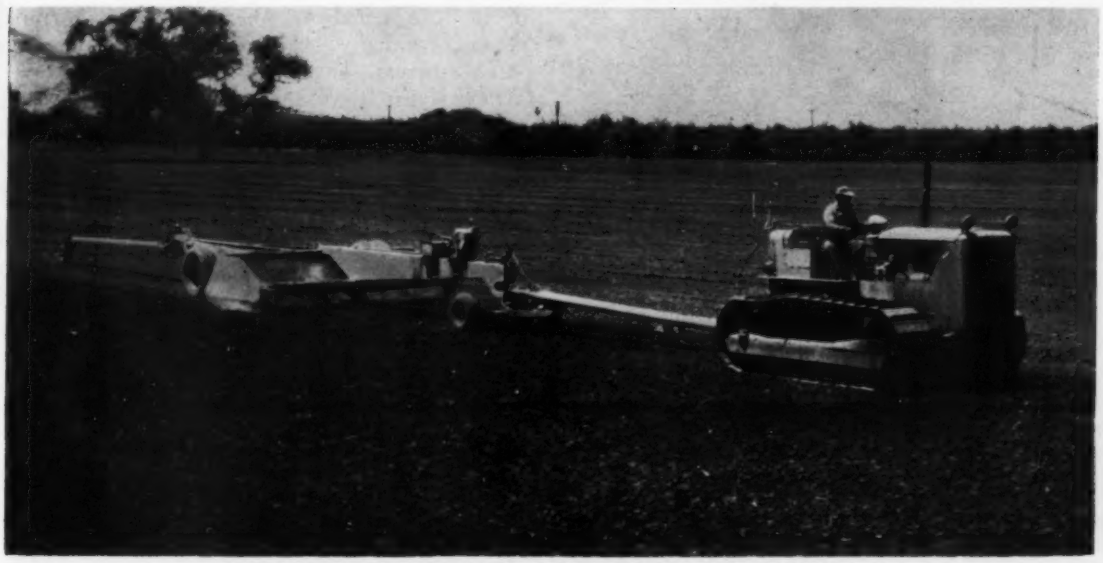
Most areas are being formed with a slope of .1 to .2 ft. per 100 ft. In some localities the areas are being formed without any sidefall. Most of the fields formed with a sidefall are in the ridge and slough areas. The maximum cuts are approximately 1.5 ft. and the sidefalls average from .3 to .5 ft. per 100 ft. Fills run approximately the same.

On the regular slopes in Louisiana and Mississippi the maximum haul distance is about 1,000 ft., with an average of 400 to 500 ft. In the ridge and slough area of the Yazoo Basin the maximum haul distance is 1,500 ft., with an average of approximately 600 ft. The maximum amount of dirt moved per acre on the uniform slopes is approximately 500 cubic yards, with an average of approximately 300 yards per acre. In the ridge and slough area of the Yazoo Basin the maximum yardage is approximately 500, with an average of approximately 350 yards per acre.

The tolerance allowed for forming work varies somewhat between Louisiana and Mississippi. Louisiana is allowing .1 ft. per 100 ft. tolerance for rough farming work and no tolerance for finished work. In Mississippi .1 ft. per 100 ft. tolerance is allowed on the finished work. The work is being done mainly by farmers with self-loading scrapers and wheel-type tractors, both in Louisiana and Mississippi.

Many soil conservation districts in Louisiana are supplying equipment for land forming work. A few contractors are also doing land forming work in Louisiana and Mississippi, using both self-loading scrapers and pan-type scrapers with crawler tractors. Most of the land levelers being used to finish the work have a length of about 30 ft.

In the Delta section soil moisture and texture are not uniform, complicating the earth-moving operation. In the cut areas, scrapers are difficult to hold, in many instances they over-cut, which necessitates refilling the area. The moist areas are rubbery. In the smoothing operation the land levelers with cross blades often only depress the high points without removing them, leaving a knoll which interferes with the movement of water. There is need for some machine



A field plane is used for the final phase of land farming operations.

development work to correct this situation.

In the seven locations of Louisiana and Mississippi, where the reconnaissance survey was made, the lack of experienced operators was reported as being the greatest problem. This is understandable since this is a new practice and experienced operators have not been developed. Furthermore, the work requires individuals with a very good conception of grade, because the areas are being formed to a very slight grade of .1 to .2 ft. per 100 ft. This lack of experienced operators also increases the work load of the technicians having to check and recheck the work, limiting the amount of land forming that can be laid out and checked.

Costs of moving the earth at these seven work locations ranged from 22 cents to 30 cents per cubic yard, with the higher costs being on areas having light cuts and fills. The cost per acre ranges from $55 to $120 per acre; the average cost is $60 to $75 per acre.

Most farmers are subsoiling the areas after forming to release the compaction of the earth-moving machines. This is desirable since tests in Louisiana show that land forming equipment, especially land levelers, compact the soil approximately 6 lbs. per cu. ft. A heavy field cultivator with flexible chisel shanks is a good tool for this operation because it blends the original soil with the fill material.

Some farmers have taken steps to gear their tillage practices to formed land. They have purchased two-way plows in order to maintain the generally formed slopes and are floating the fields before each planting. Other farmers are disking and row-breaking. A number of them have not given this phase much consideration, however, and are tilling their fields in the original conventional manner, which will eventually lessen the effectiveness of the forming work.

From the Agricultural Conservation Program records of Louisiana and Arkansas and the SCS records of Mississippi, the following land forming work had been done by the fall of 1957, with the various agencies' assistance:

Arkansas—Irrigation, 28,133 acres; Drainage, 24,084 acres.

Louisiana—Irrigation, 408,764 acres; Drainage, 11,799 acres.

Mississippi—Irrigation and Drainage, 54,254 acres.

Most farmers accept the fact that good drainage is essential in securing an adequate stand of cotton, and generally, the poor stands on farms reflect inadequate drainage. In 1957, which was a wet year, visual observations in Louisiana and Mississippi showed a good stand of cotton and a more uniform growth, even on "buckshot" land, where precision land forming was done. Farmers enthusiastically report more efficient machinery operations on formed land, especially after heavy rains. There are no low, wet spots to interfere with their cultivation.

Cotton field machines, especially pickers, work more efficiently in fields having a uniform crop. Tests at Newellton, La., in a field having a moderate ridge and slough conditions showed more even yields on the entire field after forming.

In periods of dry weather where irrigated fields have been formed, an increase of one-half to one bale of cotton per acre is reported. Increased yields of corn and reduced cultivation costs are reported on formed land by the Mississippi Experiment Station.

Farmers' acceptance of a practice is always a good index to its benefits. In most instances, farmers who have already formed land are planning to form additional areas. Most soil conservation districts in this area have from 5 to 30 applications ahead for land forming work. In many other instances farmers are hiring private engineers to lay out the work. They stress that their formed lands are so much easier to till and cultivate. Many say that this is sufficient benefit to proceed with the work, irrespective of the drainage and irrigation benefits.

In reviewing the land forming work we must realize that in a short period we have moved a very exacting, entirely new, agricultural practice to the humid section of the United States. Prior to the last 2 or 3 years, no great amount of land forming work was done in the cotton section of the alluvial areas. There was little information available on applying the practice to the humid area. Prior land forming work had been done for rice and sugarcane, both specialized crops, which use specialized field arrangements.

Agricultural workers, farmers, engineers,

and contractors are now going through a period of "growing pains" with the practice. They have done very well, considering their limited experience and available information. This is substantiated by the amount of land forming work that has been done in the short time since the farmers' acceptance of the practice.

There's an absence of large land levelers to correct the discrepancies left by the rough forming work. Since a .1-ft. tolerance is usually allowed on the rough land forming work, short land levelers are not bringing the areas to grade. As land levelers are new in the humid areas, farmers are not familiar with their use and limitations, and many still think of them as earth-moving tools instead of finishing tools. Furthermore, they are not familiar with the adjustments of the automatic type levelers. Equipment dealers have an obligation to familiarize farmers on the use, adjustment, and limitations of the equipment they sell.

The lack of skilled operators is a problem in doing the work, but this problem should be lessened as more experience is obtained.

Additional research information is needed to carry on the work, especially on the following problems:

1. In the ridge and slough areas there is need for information concerning the maximum row length and grade that can be used with the minimum amount of eroson.
2. The maximum amount of sidefall that can be allowed in a graded area.
3. Information on faster runoff from formed land for adequate drainage design.
4. More definite information on the economical limits of land forming as related to benefits and the time for amortizing the costs.

Land forming work in the alluvial areas has made considerable progress in the last 2 or 3 years and all indications are that continued application of the practice will develop many refinements. As farmers, agricultural workers, engineers, and contractors obtain more experience with the practice, we can expect to see more precision in the work. With the vast farmers' acceptance of the practice, land forming should make a substantial contribution to the agriculture of the alluvial sections in facilitating drainage and irrigation and should be a definite aid to mechanized cotton production.

LIFE RINGS ADD SAFETY TO PONDS.—Two youngsters, carrying glass jars, were playing by the farm pond one spring day. They were hunting tadpoles. Neither could swim. As they walked by the water's edge, the older one shouted, "There's some!" He jumped in, stumbled and slid into deep water. The younger boy shouted "John!" But John gradually setttled under the water's surface. All this time the younger boy looked about frantically for something that would aid John. There was nothing. John was lost. Screaming in terror, he raced towards the house.

Such tragic scenes are happening in the United States all too often. In North Carolina alone, 21 persons drowned in ponds in 1956. Half of them were youngsters under 15. Forty percent of the accidental farm deaths of children under 10 were by drowning.

Life ring with rope attached is mounted on locust post near pond's edge.

That's why life saving rings are being recommended for ponds in western North Carolina's Haywood County Soil Conservation District. Supervisor Van C. Wells puts it this way. "In an emergency, the sight of a life ring helps a witness's brain function. Even a youngster will throw out a ring to someone who is drowning, practically without thinking."

In the Haywood District, life ring installations are now included as part of each farm pond design prepared by Soil Conservation Service technicians. All it takes is a standard marine life ring and 100 feet of one-half inch manila rope mounted on a post in a conspicuous place near the pond.

—Roy R. Beck

Furrow Irrigation In Alabama

Cotton Farmers of Eastern Alabama Find Surface Irrigation a Profitable Enterprise.

By A. A. SHEPPARD

SURFACE irrigation doubled cotton yields and tripled net profits last year for Ben Walker and R. L. Butler at Milstead in Macon County, Ala. As a result, 10 times as many acres in that community will receive extra water this year.

Irrigation projects underway in Lee, Elmore, and Tallapoosa Counties of the East Alabama and Piedmont Soil Conservation Districts may also be credited to Walker's pioneer project.

Walker had 22 acres under irrigation in 1957. He is now leveling 105 more acres, and within a few years he plans to be irrigating more than 300 acres. Englehart and Thompson are preparing 90 acres. O. G. Pinkston, Jr. will apply water to 15 acres this year and 50 acres next year. Others in the Milstead area are making plans for irrigating in 1959.

In Lee County, A. L. Lazenby, Jr. is building a pond for water supply and leveling 32 acres. The soil conservation districts also have applications for assistance in Elmore and Tallapoosa Counties.

Walker did not think he was gambling when he invested in irrigation a year ago. He does not think he and his neighbors are gambling now. And he cites research findings to prove his point.

"Even in this area of high rainfall we have regular dry periods that come when cotton needs water more than at any other time," he says. "We have plenty of water in streams and wells. All we have to do is put it on the land. And, we can do that much cheaper than in other sections of the country where irrigation is successful."

He cites the USDA's 1955 *Yearbook of Agriculture, WATER* to point out that cotton needs 22 inches of water during July, August, and September for top yields.

"That is two-thirds of all the water the crop will use during the whole year. Our dry season usually starts by the middle of July and runs through August, and often through September. Subsoil moisture doesn't help much, either," he says.

"The same book shows that cotton must get more than one-third of its water in the top foot of soil, and nearly two-thirds in the top 2 feet. So, during the dry 6-weeks to 2-month's period we lose half of our crop. I don't see any gamble in setting up a system to put water on cotton during the period when it needs more but normally gets less."

Walker thinks irrigation is more important to the little farms than to the big farms. With irrigation water on the 10- to 30-acre cotton allottments and some for a truck garden he contends the small farmers can stay in business.

Furrow irrigation is a new practice in Alabama and there is little experience in designing and operating the systems. Since that was true, the Alabama Experiment Station cooperated with Walker on his first project. Station em-

A farm tractor furnishes the power for a pump that lifts 2,600 gallons of water per minute from the Tallapoosa River to a storage reservoir.

Note:—The author is area conservationist, Soil Conservation Service, Dadesville, Ala.

ployees did this in order to apply research information obtained from experimental furrow-irrigation systems and also to gain additional information.

Evaluation of results obtained with Walker's pilot project showed that with proper design and efficiency, adequacy of irrigation can be obtained with furrow systems.

The field surveys, designs, and supervision of construction are done by the Soil Conservation Service. The Auburn Agricultural Engineers plan to continue their research to determine best methods of design and operation of the furrow-irrigation systems.

Water is stored in a small reservoir as it is pumped from the river.

County Agent, J. M. Bolling is also on the team and makes recommendations for specific cotton varieties, fertilizers, and insecticides to use.

Backing the program is the county ASC committee, which shares the cost of most projects. D. G. Johnson is chairman of the Macon County ASC committee, and is a member of the East Alabama Soil Conservation District Board.

SCS State office personnel are making studies of the types of land suited to surface irrigation and designs that will give the best use of water.

Siphon tubes are used to draw water from irrigation canal to cotton rows.

"With this kind of help we are not likely to go far wrong," Walker adds. "We couldn't hire better help—but we don't have to—it is free. If we take advantage of it where we have suitable soils and water, we can keep our cotton industry in the Southeast."

Cotton on Walker's 22 acres of irrigated land produced 41 bales, even though bad weather during harvest time caused him to lose 5 to 10 bales. The grade was better and he was paid $5 to $10 more per bale than he received for cotton on land not irrigated. He says he would have made not more than 19 bales on the field if it had not been irrigated.

He likes this system of irrigation. Water is pumped from the Tallapoosa River into a small reservoir at the edge of the field. From this it flows through supply ditches and is siphoned out into the cotton middles.

In one respect it is better than either natural rainfall or sprinkler irrigation, he believes. He can spray the field for insects and immediately start irrigation. There is no waiting for the spray to kill the insects before the water is turned on. He can keep insecticide on the plants and the ground wet at the same time.

Walker contends that Alabama's average yield of lint cotton in 1957 was 346 pounds per acre, while Arizona, where cotton is irrigated, produced 1,097 pounds. Under irrigation he harvested 932 pounds and believes that if there had been no loss he would have equaled Arizona's production.

A Salute To District Supervisors

A Texas Editor Expresses His Views to the State Association of Soil Conservation District Supervisors of Arkansas.

By WALTER R. HUMPHREY

A State with enough on the ball to pass the first soil conservation districts law, doesn't need a foreign missionary to come tell it how to run its business.

In fact, I should be sitting at your feet to listen. For yours is the triumph of practical conservation, and your story is the saga of an awakened America.

Arkansas is a beautiful State. Without the constant effort of conservation-minded men and women, however, it could be a State pock-marked with the scars of waste and carelessness —its forests denuded, its hillsides white from erosion, its farmland gullied, its wealth in the channel of the Mississippi, and on the floor of the Gulf of Mexico.

What you and your fellow conservationists have done is to preserve a rich and productive heritage for those who follow you!

I come to you as a newspaperman who has seen the *Fifth horseman of the Apocalypse, "Erosion,"* met on the field of battle and contained.

I come as an editor who has been privileged to show the way of the soil and water-savers, to interpret their campaign, and to put conservation in the headlines as one of the great stories of my day.

It all was a dramatic story for me; a story unfolding before my eyes, a story I could tell with conviction because it impressed me from the very first day.

I saw in this great unfolding story the assurance that my home town would not be a ghost town or merely a footnote in history.

What has brought us to the threshold of a future in which hope has replaced the certainty of despair?

The vision and dedication of a prophet and crusader such as Hugh Bennett, the hand of the President of the United States, the devotion and salesmanship of the scientists who were assembled to lead the way, the State laws that permit us to organize districts.

Yet, the cooperative effort of neighbors was the payoff in the last analysis.

If neighbors hadn't gotten together to organize soil conservation districts; if they hadn't been convinced that they were in part responsible for what happened to the land that lay below theirs—well, if they hadn't been good neighbors, the miracle could never have happened.

There is no more essential unit of our free government than the soil conservation district and the supervisors who run it. Surely there are few public servants so unselfish and so dedicated.

"Supervisor" has become an honored title.

No scandal has been attached to it. No selfish purpose has corrupted it. Money can't buy it. It knows no party. It knows no favorite.

It is honorable and dignified and it exemplifies, more than any title I know, the good qualities of public service.

The supervisor is a man of the soil, but he is distinguished by his vision and his willingness to assume leadership.

He is a good citizen and a considerate neighbor. To him, conservation is a profession as well as a duty.

Neither the doctor nor the lawyer, the teacher nor the minister, surpasses him in the unselfishness of his devotion to the well-being of his community and the human race.

Yes, the supervisor is somebody very special. I salute the supervisor. He is the royalty of the conservationists, yet he bears his royalty with all the humility of the faithful servant.

Note:—The author is editor of The Fort Worth (Tex.) Press. This article is a digest of an address to the Arkansas Association of Soil Conservation District Supervisors. The complete address was published in the Southwest Implement News, Tex., April 1958.

Although I single out the supervisor for special mention, I fully recognize that he is part of a team; a team that must throw its forces together or we get no results at all.

The army of those who are working every day at the assignment of saving the soil and water resources of Arkansas is a sizeable army.

Today it comprises nearly 70,000 cooperators. This adds up to strength in anybody's league. Add to that the other believers and you have a strong core of progressive citizenship committed to using beneficially all the water that falls from the clouds or comes rushing down from the mountains, and you are committed to letting no more of our good soil go washing or blowing away.

That isn't enough.

You who bear the burden of leadership know it isn't enough. You know that soil and water conservation should be taught in every schoolhouse.

You know that every banker, every merchant, every professional man must be completely persuaded not just that what you're doing is good, but that it's absolutely necessary. And that they must have a part in it.

Walter R. Humphrey

Conservation is a good word. People like it. It is politically acceptable. It sounds wholesome and it makes sense. Soil conservation makes sense, too, any way you take it.

But let us not ever be deceived into thinking that everybody understands and appreciates it. Everybody doesn't.

People have to be shown the simple, basic things. Why rainwater can be so destructive—what happens to tiny branches when torrents come roaring down them—how concrete walls can be undermined, but how deep roots can batten down the land. They have to be shown how grass and legumes work, and why a contour and a terrace are good.

All these are simple things that seem but ABCs to you and me. Yet, for the permanence of the task you have taken on your shoulders, you must teach these ABCs to the thousands of people who have neither heard them nor observed them. You must start with the children.

Education, therefore must be pursued with diligence. We cannot afford to relax until all of our people are conservationists.

As much as anything else, I am talking about the ideals of this problem, not about the scientific, practical aspects of it, and not about the economics of it. You know those things better than I.

It is the Golden Rule. It is being your brother's keeper. It is assuming a stewardship of the land. It is leaving a heritage to unborn generations. It is thrift. It is prudence. It is, in truth, a shining ideal.

What is conservation? It is simply the wise use of the land and of the water that falls on the land. It means minimizing the erosion by water or wind, planting crops that tie the land down on the one hand and restore its fertility on the other. Often it means *not* to plant. Primarily it means the application of good and sound rules of common sense.

Conservation is a sound and logical word. It connotes something we're all FOR.

I never saw an admitted anti-conservationist in my life. That's because folks like the idea. It's safe, progressive, non-political. It's like virtue, home, and motherhood.

Yet, I've seen many folks who actually were practicing anti-conservationists. So have you.

They're mostly the hear-no-evil, see no-evil

school. They haven't time for it. It's something remote and academic. Most of them live in the city. The bigger the city the worse they get. If you don't see the sunset across the plains, you see neither the field of waving wheat nor the dust storm.

We all live on and from the land and the protection and preservation of our natural resources can never be the sole responsibility of the man who happens to be the land's tenant.

So, whether I run a newspaper or a factory or a farm, whether I work in an office or a mill or on a ranch, these resources are in my charge. And I must do something to keep them productive for those who follow after me.

There is a great responsibility on the hearts of all of us to bring understanding of the problem of soil waste—to make the people we can influence acutely aware of the facts of life, namely: That the land feeds and clothes and sustains us, and if we're going to feed and clothe a people growing by 8 or 10 millions yearly, then we MUST use it wisely.

The alternative is a country growing poorer.

What can you and I do about it, specifically?

We can see to it that our children understand what erosion means and how important conservation is.

If we own or control any land or have influence with anyone who does, we can insist that a conservation program be followed.

We can offer our aid and comfort to our soil conservation district.

We can use our influence to see that sound and progressive soil conservation legislation prevails.

If we could but get over the lesson that the land is not just the farmer's worry, but that it is every citizen's concern.

That our cities and towns are completely dependent on the soil—their skyscrapers, their industries, everything they are or aspire to be.

That forests can be protected and harvested so as to insure a timber crop for all time to come.

That the very geography of sloping land means an obligation of a man to cooperate with his neighbor in controlling runoff and utilizing water.

That conservation is a philosophy of life, something to be believed in and lived because our lives depend on it.

That being a conservationist is being a good citizen, that ignoring our duty as caretakers of this exhaustible resource—is being a bad citizen.

Soil conservation isn't, in its final analysis, a scientific offensive—an assault by the skills and genius of technical men.

Soil conservation is people—people who love the land, people who will spend their fortunes and their lives to preserve the land, people who will fight to keep it green and fertile and useful and beautiful, just as a soldier will fight to keep it free.

SURPLUSES OR SHORTAGES?

IF there ever was a time when soil conservation was important, that time is now, Alexander Nunn, editor of *The Progressive Farmer*, told members of the Alabama Association of Soil Conservation Districts at their 15th annual meeting, in Montgomery, in January.

Basing his statement on, "the exploding world population and technology," Mr. Nunn pointed out that, in spite of present abundance, population is now outgrowing production and that "one of these days we're going to have shortages, not surpluses.

"We have grown from a population of 76 million to 171 million since 1900," he said. "It is now estimated that we'll have 225 to 230 million by 1975 and 300 million by 1993. Unless we can greatly increase production per acre, or unless we can uncover entirely new techniques of food production, we cannot always continue to provide the level of nutrition and the quality of production that we have today."

Mr. Nunn indicated too that there are factors in present surpluses that are not readily apparent. For example, the Nation has gained for other uses in recent years 30 million acres formerly devoted to production of feed for horses and mules. But, this is now over. There are less than 5 million horses and mules left altogether; yet, at the peak in 1918, we had 26,725,000.

"The exploding population in America is more than matched in other lands," he pointed out. "It is predicted that the present world population of 2¾ billion will increase to 6 billion by the year 2000 and to 13 billion by the year 2100."

"Because of what American farmers have achieved in efficiency," he said, "no large group of people has ever had so much good food, at such a high level of nutrition, and at such a low percentage of their income as have the people of this Nation. And the ridiculous part of it—if it were not so dangerous and likely to be so tragic—is that the more abundant has been the farmer's production, the less money he has received for it.

"In recent years," he continued, "the income of every other major group has gone up while that of the farmer has gone down. Yet, the farmer has been increasing his efficiency faster than other groups.

"Orris Wells, chief USDA economist, tells us today that a 10 percent increase in production in agriculture for the Nation brings a 16⅔ percent cut in price; a 10 percent cut in overall production brings a one-sixth increase in price.

"In other words, for the short term, it would pay farm people to produce less than normal crops. They would actually make more. None of us, I think, would say that this policy is sound for the individual farm family or for the Nation over a long period of years. But we must stop penalizing our farmers for abundance.

"Furthermore," he pointed out, "while national population is growing so fast, farm population has been rapidly dropping. At the peak, we had about 32 million farm people in 1930; today, with a much greater total population, we have less than 21 million farm people.

"The qualities that have built America have come from living close to the soil and to nature. We cannot save democracy or the system of private enterprise of which we've been so justly proud in a highly urbanized society. We must continue to push soil conservation and policies that will insure a stable and prospering agriculture. Soil conservation is everybody's job—the individual's and the Nation's.

"You, working together unselfishly in soil conservation districts, have helped to put a spiritual quality into agriculture, a spirit of teamwork and cooperation that we so badly need today," he told the group. "You have been training real farm leaders.

"For the future, I suggest consideration of a policy which says in essence, 'It may be that we can best save our own generation by saving others.' The self-centered have always lost."

A Bountiful Harvest

More than 400,000 Pounds of Native Grass Seed were Harvested in One Kansas Community During the Fall of 1957.

By GUY MOOREFIELD

A TRAVELLER going north out of Rosalia, Kans., in the fall of 1957, found himself comparing the amazing sight then confronting him with that of just a short year before. In every pasture the tall bluestem plants were waving seed heads like seas of ripening wheat. Self-propelled combines hummed their way over practically every hillside. The combines rolled from hill to vale gleaning the rich harvest of

Note:—The author is work unit conservationist, Soil Conservation Service, El Dorado, Kans.

A seed crop of bluestem grass ready for harvest on the C. R. Nuttle ranch.

prairie grass seed. From Kansas, Oklahoma, Colorado, New Mexico, and Texas commercial seed dealers had converged on this area to harvest bluestem seed.

Many natives were amazed. Harvesting of prairie grass seed on such a scale was unheard of. It was a time race between Nature's own combine of high winds and freezing weather against the reapers driven by man. Seed had to be binned while favorable weather lasted.

One year ago, this area was seared after a 5-year period of unprecedented drought and hot winds. The grasses were short and many pastures were virtually grazed to the ground. Many cattlemen were forced to truck in feed and water for livestock. Some cattle herds were greatly reduced and no longer were herds shipped in to graze the famous bluestem grasses.

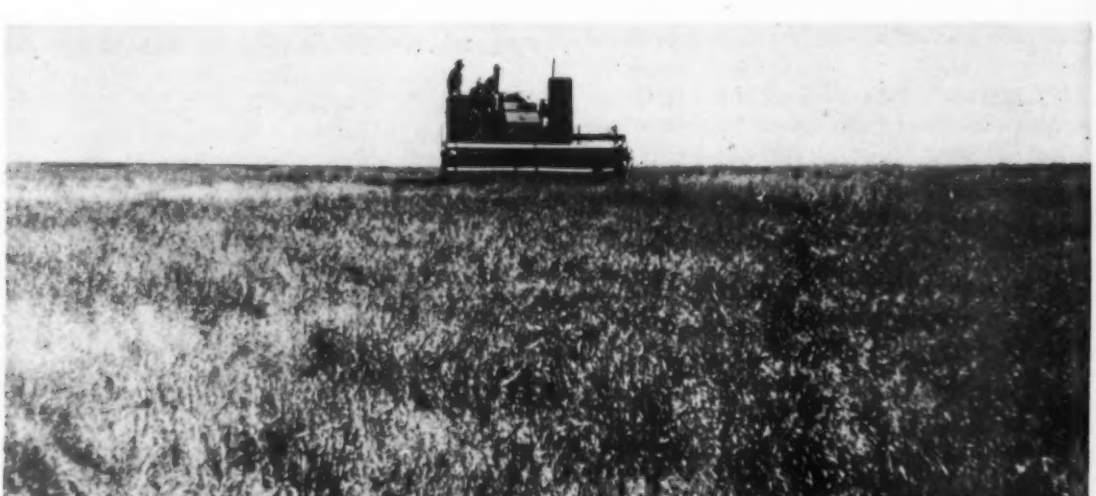
But in the spring of 1957, the rains came again and so did the grasses. The 1957 stocking rate on most of the pastures had either greatly reduced grazing or had deferred grazing practices because of the short condition of the grasses. This proved to be wise range management, as it allowed the grasses to get a good start with the rains. Their recoverey was almost unbelievable. By midsummer they were ahead of the cattle in many pastures. The grass kings of the prairie—big bluestem, little bluestem, switchgrass, and Indiangrass—were acquiring their typical reddish color and sending up seed stalks.

Soil Conservation Service personnel were watching the developments. The big question was would the seed heads fill. News articles were written informing local ranchers of the seed possibilities, and how to analyze their seed prospects. In September, young Dave Nuttle came into the El Dorado SCS office and requested that the C. R. Nuttle Ranch pastures be inspected. The author and young Nuttle drove to the pastures.

The prairie grasses resembled in height and density a fine wheat field at harvest time. Subsequently other pastures were inspected. The A. H. Gish pastures showed fine possibilities for switchgrass production. The Vestring, Smith, and Liggett pastures were seas of waving grass. By October the seed heads had filled. Hundreds, even thousands of acres stood ready to be harvested. Ranchers were urged to make arrangements to harvest the much needed seed.

Soon the news spread to commercial seed dealers over the Great Plains. Representatives converged upon the area. Quickly they spread out, entered into contracts with the landowners to harvest the seed—giving either a share or cash. Dealers wanted prairie grass seed.

With contracts made, combines began moving in. Local machines and operators were hired



Combine harvesting native grass seed on the A. H. Gish ranch.

Blackwell switchgrass on the Winston Wheeler ranch that yielded more than 400 pounds of seed per acre.

in many cases. Abandoned schoolhouses, store buildings, and every other available empty building of adequate size were rented in which to store and dry the seed.

The first combines began October 12, on the A. H. Gish Ranch, 6 miles north of Rosalia. Over 70,000 pounds of switchgrass seed were harvested on the Gish Ranch. Before the combines were halted, by a combination of freezing weather and strong winds, approximately 400,000 pounds of prairie grass seed had been harvested in the Rosalia area. The seed came primarily from the Gish, Nuttle, Smith, Vestring and Liggett pastures.

Many hundreds of acres were not harvested because of inclement weather. However, a good harvest was made and the much needed seed is now available. In Butler County, the SCS estimates that 26,000 acres of eroded cropland should be reseeded to native prairie grasses. At 15 pounds per acre, it would require 390,000 pounds of seed to plant this acreage. The seed harvested would just about do this reseeding job. But much of this seed crop will not be used in Butler County, it will be shipped to other areas needing prairie grass seed. Yet, the Butler County Soil Conservation District grassland drill was busy in late winter and early spring of 1958 drilling prairie grass seed.

The Bull-Tongue Plow Comes Back

Farmers in the Hills of Tennessee Use the Bull-Tongue Plow and One-Row Corn Planters to Seed Grass on Steep, Shallow Soils.

By BILLY F. SMITH

"THE man with the bull-tongue plow" can be seen again in the hills of eastern Tennessee. This time he is not planting cultivated crops as did his forefathers. He is planting grass to prevent soil erosion and provide grazing.

Making a living on steep hills with shallow and droughty shale soils is not easy. But farmers in the Cocke County Soil Conservation District have found a way to grow badly needed pastures. They seed Kentucky 31 fescue in contour rows, using a bull-tongue plow and a one-row corn planter.

While Cocke County has much good bottom land on the Pigeon, French Broad, and Nolichucky Rivers, it has its share of steep shale, mostly in the Dandridge soil series. The slopes range from 15 to 60 percent—too steep for tractor-drawn farm equipment.

Note:—The author is work unit conservationist, Soil Conservation Service, Newport, Tenn.

Howard Parks and son Johnny display equipment used in seeding grass on a steep hillside.

Planting tall fescue with a one-row corn planter on the Raymond Jenkins farm.

Conservationists who are acquainted with the area generally agree that to set pine seedlings on these soils would probably be the best long-time solution. But, many farmers are faced with the problem of making a living on farms that have as much as 90 percent or more of these soils types. Typical of these farmers are W. Gray O'Neil and Howard Parks of Newport, Tenn.

Mr. O'Neil owns more than 500 acres of land, 80 percent of which is Dandridge soil. He grows needed hay and grain on another farm. He is pasturing about 100 Angus cattle and 70 ewes on the hill farm. He asserts that he could not maintain his farm economy by setting 80 percent of his land to trees.

Mr. Parks' farm consists of 75 acres, 90 percent of which has steep shaly soil. He runs a dairy. He, too, cannot see how he can make a living with 90 percent of his land in trees.

So with the need for pasture an economic necessity, these farmers have set out to answer the following questions: What grasses and legumes are best suited to these soils? What is the best method to establish pasture on this land that is too steep for ordinary machinery?

Parks and I began to work on these questions while developing a farm conservation plan for the Parks' farm in July 1956. Looking around the farm for some answers, we noticed an old bull-tongue plow and a one-row corn drill, which is still used there to plant corn and other row crops. With some adjustments it was decided to try them on the hills to seed Kentucky 31 fescue.

The bull-tongue was used to open furrows 6 inches deep and 1½ to 2 feet apart on the contour. The corn planter fertilizer attachment was used to drill 400 pounds of 6-12-12 fertilizer per acre in the furrows. The grain planter on the drill was set to its maximum speed. The spout was removed at the base of the seed box to allow the fescue seed to flow uniformly on or near the surface of the soil. Upon examination the seed were found to be about one-fourth to one-half inch deep and the fertilizer about 2 inches deep.

The Parks' seeding was completed in August 1956. Later in the fall three or four of his neighbors tried variations of this method on their farms. By the spring of 1957 there was a good growth on all the row seedings.

Gray O'Neil seeded 30 acres by this method in February and March 1957. He too was successful. Records of the O'Neil operation show that total cost of seeding this way, including labor, seed, and fertilizer was $14 an acre. This is about one-half the cost of preparing a seedbed and seeding by conventional methods.

Kentucky 31 fescue was used on all farms. Mr. O'Neil said, "I have found Kentucky 31 fescue to be the best grass for these droughty

Inspecting a one-year old seeding of tall fescue on the Howard Parks' farm.

thin soils." Legumes used on the O'Neil farm include sericea, annual lespedezas, and white clover. Mr. Parks plans to overseed clover or annual lespedeza on his row seedings of fescue.

All the farmers using this method have been pleased with the results; and, so far the plantings have been successful. Results of this method are similar to those reported by experiment stations where band seeding (a method of precision placement of seed and fertilizer) equipment has been used. Recent research indicates that seed placed one-fourth inch deep and fertilizer placed about 2 inches deep gives faster initial growth and more surviving plants per acre. Other advantages include less weed competition and more forage per acre. Seeded grass also has a better chance to compete with other existing vegetation because the fertilizer is placed in a band directly beneath the desired grass.

So, until mechanized equipment is developed for precision placement of seed and fertilizer on these very steep hills, there is still a need for "Old Beck" the mule on many of these farms. Soil and water onservation can still be achieved with mule power as well as with tractor power.

More Fences to Cross

By T. S. BUIE

ERON CROW is a soil scientist stationed at Bamberg, S. C., and as other soil scientists, when he starts out to make a soil survey of a farm or similar area he doesn't let ditches, fences, or any other obstruction get in his way.

Recently, in talking about the agricultural developments, which have occurred in Bamberg and adjacent counties since he began work there 15 years ago, Crow said: "I know that the land use pattern in this section of the State has changed greatly in the last 10 or 12 years. When I first came here, I rarely ever had to climb over or crawl through more than 3 or 4 fences in a day; now, the number has increased to 25 or more. Most of them are cattle fences, too."

This illustrates better than mere figures how farmers have changed from growing cotton and other row crops in unfenced fields to livestock. Sleek herds of beef and dairy cattle can be seen on almost every farm and when they are not grazing on luscious grass pastures enclosed by strong fences they are lying in the shade of trees placidly chewing their cuds.

Farmers in the Edisto Soil Conservation District have established 10,362 acres of permanent pasture since the district was organized in 1937. During the same period the cotton acreage has been reduced from more than 20,000 to about 8,000 acres.

Note:—The author is State Conservationist, Soil Conservation Service, Columbia, S. C.

Eron Crow crosses another fence during his soil survey operations.

IN ORDER TO INSURE VALUE RECEIVED for the farmer's and government's dollar, technical soundness in conservation planning and treatment is essential. Whether it is under district farm planning, cost-sharing programs, or watershed land treatment, the conservation measures should fit the needs of the land and the conservation objectives of the farmer.

D. A. WILLIAMS

Stubble-Mulch Fallow

Stubble-Mulch Fallow Controls Wind Erosion and Stabilizes Crop Yields for Nebraska Wheat Farmers.

By EUGENE E. SOLOMON

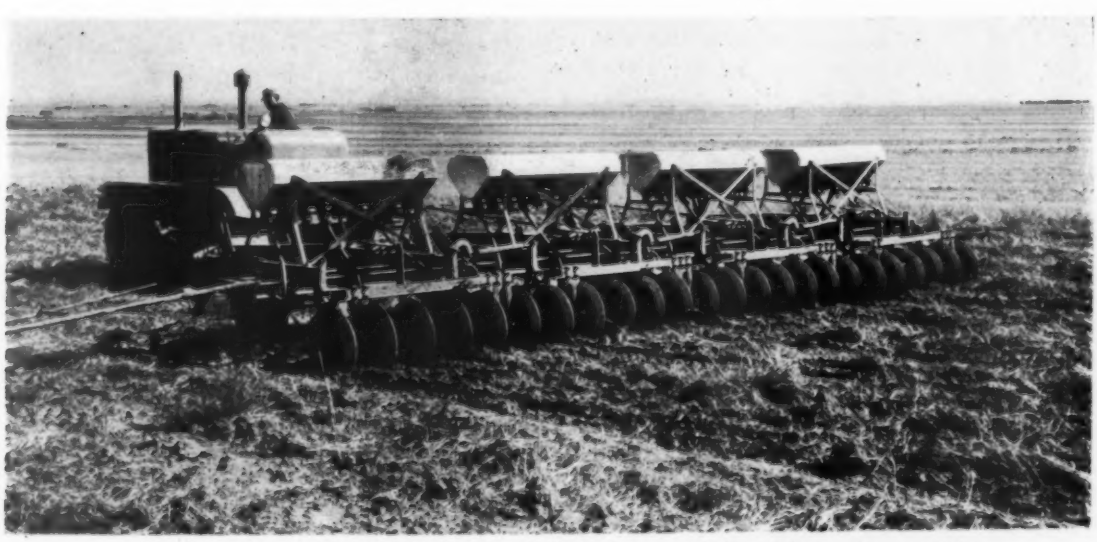
A GROUP of wheat farmers in Scotts Bluff County, Nebr., are doing an outstanding job of stubble mulching on land subject to severe wind erosion. They have found that the stubble-mulch fallow system of farming pays off in better crops, especially during years when wind erosion is severe.

Robert Preston, a cooperator with the Scotts Bluff Soil Conservation District, was one of the first to start this method of farming in the Lyman area. Preston does his stubble mulching mainly with sweep equipment. After extensive study and traveling, as far as Canada to see how stubble mulching was done elsewhere, Preston has relied mainly on large sweep equipment to do the job. Occasionally one-ways and rod weeders are used in combination with sweeps.

Preston and most other farmers in the area make two tillage operations after harvest. These operations are made for the control of volunteer wheat and cheatgrass, or downy brome as it is sometimes called. Because cheatgrass and winter wheat are much alike in growth, farmers find the cheatgrass difficult to control. The first sweep operation is made in the stubble field immediately after harvest to plant the seed of cheatgrass. This operation is followed by a second operation with sweeps in fall to kill the cheatgrass planted by the first operation. Usually three or four operations are made during the fallow season the next year. It sometimes is necessary to use the one-way on the first spring tillage operation when wet conditions occur in the spring. Ordinarily the ground can be tilled a few days earlier with the one-way than with sweeps.

Some of the farmers in the Lyman area delay all tillage operations until spring. But, most

Note:—The author is management agronomist, Soil Conservation Service, Scotts Bluff, Nebr.



Planting wheat with a high clearance drill in heavy stubble mulch near Lyman, Nebr.

Wheat growing in a stubble mulch field near Lyman, Nebr.

agree that timeliness in making sweep operations is very important for the control of weeds and maintenance of residue.

Drilling is done with high clearance hoe drills. These drills have about 17 inches of clearance between tip of the hoe and the frame of the machine. There are about 24 inches between front and rear ranks of hoes. Drill rows are spaced from 10 to 14 inches. These high clearance drills make it possible to pass through heavy residue and at the same time keep from covering the mulch.

The fallow system performed by the Lyman farmers is done in such a way as to maintain enough residue on the surface to protect the land from blowing at all times. Usually this is about 1,500 pounds per acre at drilling time. Mr. Preston states, "Maintenance of residue and the control of weeds, especially cheatgrass, takes closer management on our part, however, it is necessary to control wind and water erosion and stablize crop production."

DISTRICT PROFILE

JESUSA APONTE of PUERTO RICO

FOR the first time since soil conservation districts were organized in Puerto Rico, a woman, Mrs. Jesusa Aponte, has been elected supervisor of one of the 17 soil conservation districts into which Puerto Rico is organized.

Mrs. Aponte personally supervises and operates a 272-acre sugarcane, coffee, and livestock farm located near San Sebastian in the upland part of central-western Puerto Rico.

Mrs. Aponte's efforts in the cause of soil and water conservation were recently given recognition by the Puerto Rico chapter of the Women of America, when she was selected as one of the outstanding women of the year for her successful contribution to the betterment of the land and the people of Puerto Rico.

Soon after taking over operation of the family farm, Doña Susin, as she is known to all her neighbors, proceeded to plant locally adapted and higher yielding sugarcane varieties. She removed old low-producing coffee trees, substituting for them seedlings from her own tree nursery of Puerto Rico Select and Bourbon varieties.

Mrs. Jesusa Aponte.

She has planted the Bourbon variety without shade. Tests show it is capable of producing 2,000 pounds of shelled coffee per acre. This compares very favorably with a 150-pound yield obtained from the former overcrowded and highly shaded inferior plants.

All new sugarcane plantings have been made on the contour. This, together with the crop residue mulch obtained from the sugarcane leaves, provides excellent protection against soil erosion. She has replanted 75 acres of low-yielding, native pasture to high-yielding pangolagrass.

In addition to her multiple farm responsibilities, Mrs. Aponte has reared three daughters, the youngest of whom is now finishing college in Washington, D. C.

Mrs. Aponte's enthusiasm for and interest in soil and water conservation induced her to become a candidate in last year's election for district supervisors. In spite of the fact that no other woman had ever before been considered for such a position in Puerto Rico, she was elected by a large majority. Since then her leadership and enthusiasm have made her well known throughout Puerto Rico.

At present, she is chairwoman of the Culebrinas Soil Conservation District board. This district is one of the most active in the Caribbean Area.

Through her leadership the district has sponsored the production of seeds from improved grasses and legumes: such grasses as napier, molasses, and pangola, as well as the tropical kudzu legume. The seed produced has been distributed on a loan basis (each agrees to return an equal amount when his plantings reach seeding age), among more than 75 interested district cooperators.

The Culebrinas Soil Conservation District board of supervisors has also encouraged 30 coffee farmers to prepare their own coffee tree nurseries using improved varieties. Furthermore, it has called to the attention of the farmers in the district the need for diversifying crops and planting crops such as onions, corn, and vegetables, which are not grown in sufficient amount, at present, in Puerto Rico.

It is a tribute to her unselfish interest in the cause of soil and water conservation that Mrs. Aponte refused to be considered for any elective post in the Puerto Rico Association of Soil Conservation Districts last year. She preferred to serve as a representative of her district on the board of directors, allowing others, with greater experience in administrative procedures, to lead the destiny of the State association for 1958.

Mrs. Aponte's example in soil conservation district leadership may well serve as an incentive to other women of Puerto Rico to take a more active part in the conservation of the Commonwealth's natural resources.

—J. F. MARRERO

Prairie Windbreaks

By SIDNEY S. BURTON

COMFORT is desired by everyone during the winter months. A good windbreak can help give this comfort and at the same time be profitable.

As a nursery salesman once said: "I could sell a billion trees during January and February if there was some way to put them into the ground." But when the bitter winter winds stop whistling down the chimney, and there is no longer snow to be shoveled between the house and barn, the need for protection is forgotten in the rush of spring work.

Trees are not just mighty nice, they also have actual dollars and cents value on most farms.

A good farmstead windbreak, by actual measurement, has reduced winter fuel costs by as much as $50. Feed costs of 86 South Dakota and Nebraska cattle feeders were reduced by an average of $800 annually because of the protection from windbreaks. Fifty-three dairy farmers estimated their savings at $600 a year.

Protecting the farmyard with a windbreak not only saves snow shoveling in the winter, but also makes it easy to beautify the home with lawns, ornamental shrubbery, and flowers.

To obtain these benefits, advanced planning is important. The ground should be made ready for planting a year ahead. Trees should be ordered early in the fall for spring delivery. Whether a new windbreak is needed or an old planting is to be reinforced, the planning should carefully consider the kinds of trees that will make the best barrier to the wind.

Most farmsteads have been planted to trees over the years, but many still do not have efficient windbreaks. These old tree plots can often be converted to good windbreaks by the judicious use of shrubs or conifers, as many Nebraska farmers have proved.

Note:—The author is woodland conservationist, Soil Conservation Service, Lincoln, Nebr.

Snow drifts near a Holt County, Nebr. farmstead that lacked windbreak protection.

An earlier planting of elm trees is reinforced by three rows of red cedars to make an effective windbreak in Colfax County, Nebr.

Two-year old multiflora rose and red cedar are holding snow that used to blow through this Antelope County, Nebr. windbreak.

Cultivating a young windbreak planting on the Harvey Raynard farm in Logan County, Nebr.

Farmstead windbreaks on a York County, Nebr. farm.

DUST BOWL. By Patricia Lauber. 96 pp. Illustrated. 1958. New York: Coward-McCann, Inc. $2.50.

THIS is one of the "Challenge Books" put out by the publishers for children in the intermediate grades. It is well written and profusely illustrated. It includes a brief history of the Great Plains with emphasis on the droughts of the 1930's and 1950's. The latter part of the book is devoted to conservation measures that may prevent future dust bowls.

MATERIALS FOR TEACHING CONSERVATION AND RESOURCE-USE. By National Association of Biology Teachers. 55 pp. Illustrated. 1958. Danville: Interstate Printers and Publishers, 35¢.

THIS bulletin should be an excellent reference for teachers and others doing conservation education work. It includes listings of free and inexpensive materials from State and National agencies, selected references, films and film strips, and other teaching aids.

WATERSHED PROTECTION.—The small watershed program under Public Law 566 is one of the great conservation developments of our time. It is of, for, and by the local people. It is fashioned in the traditional American concept that the people themselves not only have the right but the responsibility to develop and carry out their own programs.

EZRA TAFT BENSON,
Secretary of Agriculture

GOOD NEIGHBORS.—Howard Gilmore of Westboro, Mass., wanted to enlarge his 1½-acre pond to 2½ acres. That would have meant, though, placing the spoil on the farm of his adjoining neighbor, Francis Adams. Gilmore and Adams were both cooperators of the Northeast Worcester County Soil Conservation District. So it was natural that both men were used to working helpfully with people. Here was a case where each could help the other to his own advantage.

So Gilmore bought a 400- by 100-ft chunk of Adam's land. That let him enlarge his pond. To help his neighbor, Gilmore extended the pond into Adam's farm. Now Adams can also use the pond to water his livestock.

—GAYLAND E. FOLLEY

MINIMUM TILLAGE.—Wisconsin soil specialists have found that rough plowing, wheel track planting of corn, and interseeding of alfalfa between the corn rows is a practical method of renovating old pastures or meadows. Their tests were made on a 12-year-old bluegrass pasture with a 12 percent slope. The plowing and corn planting were done on the same day. Weeds in the corn were controlled by a 2-4-D ester at planting time. The alfalfa was interseeded a month later.

Even with a heavy rain the day after corn planting, no runoff or soil loss occurred on the rough plowed land and the corn germinated almost 100 percent. The alfalfa stand was better between the 60-inch corn rows than between the 40-inch rows, but the corn yields were about 10 bushels lower. The average yields on all plots was about 80 bushels of corn per acre.

CONSERVATION EDUCATION CONFERENCE.—The fifth annual conference of the Conservation Education Association will be held at the University of Utah, Salt Lake City, Aug. 18–21, 1958. Participants will include educators from all teaching and administrative levels, leaders of youth groups, and representatives of industries and private agencies concerned with conservation of natural resources. The theme of the conference will be: "Conservation Education at the Grass Roots—How Can We Do It Better."

SOIL CONSERVATION

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